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Differential knowledge concerning students in an academic institution : the relative effects of status, interaction patterns, network position, and individual characteristics

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Differential Knowledge Concerning Students in an Academic Institution: The Relative Effects of Status, Interaction Patterns, Network Position, and Individual Characteristics

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CONTENTS

ABSTRACT

This master's thesis is concerned with the social distribution of cultural knowledge. Consensus analysis and social network data are used to explore the extent to which different factors can predict the patterning of knowledge in a medium-sized, private university. Fifty-one undergraduate admission-involved faculty and administrators completed a multiple-choice quiz pertaining to characteristics of Lehigh University students (prospective, accepted, and enrolled). Demographic information and four questions detailing their interactions and communications with all other informants were also used to test four hypotheses. (1) Different status groups develop their own unique opinions about students. (2) People learn the social knowledge through their dyadic interactions with others in their peer group. (3) Individuals central to the peer group network learn the institutional culture better than those peripheral to the group. And, (4) learning culture is through diffuse, multi-source saturation measured by such variables as age, number of years at the university, and number of other people that are known. Consensus analysis showed a common culture. Although the status and biographical factors are unrelated to an individual's grasp of the common culture, dyadic interaction and centrality of informants are statistically significant predictors of the distribution of cultural knowledge. Also, the second factor of the consensus analysis appears to be more strongly related to interaction patterns, as well as, identifies an ideological gradient concerning the characteristics of students. The research design and methodology could be used to study the organization of knowledge in any bounded social group.

PREFACE

Studying the distribution of knowledge in a single organization is a complex issue. This thesis began after I heard one lecture about social network analysis by Jeffrey Johnson. The concept of social networks fascinated me and it was something that I had to explore. A semester was spent reading and learning about the field of cognitive anthropology, consensus analysis, various methods of anthropological data collection, and social networks. Now, I needed a topic to use all of this new information.

Since I had worked in an undergraduate admission office, this seemed an obvious topic choice. Cultures are usually researched as homogenous groups of individuals with distinct languages and traditions. However, in many organizations, there exists diversity and distinctness. My research was going to examine the distribution of knowledge as dependent on intercultural diversity, social experience, and the interaction of individuals. In other words, study social knowledge as it is distributed among diverse groups of people. Culture can no longer be assumed to be homogenous and completely distinct from one group to another. Social knowledge is distributed in such a way as to produce subcultures with a collective conscience or commonality of cultural knowledge.

When I worked in the admission office at a private college, the other counselors would always remark that he or she is a typical student at our

college. I always wondered what that meant and how one could categorize what a typical Lehigh University student would be like. Therefore, this thesis examines the cultural domain of opinions about students and how this knowledge becomes a part of undergraduate admission culture.

The first section describes the theoretical perspective of cultures as organized knowledge and how this social knowledge is managed. The second section gives a detailed account of the research techniques, hypotheses, and methods that are the basis of this research project. Relevant current research is included in support of the hypotheses. The last section details the results as well as discusses how the research could be continued or improved for future projects.

1... BACKGROUND

> *A society's culture consists of whatever it is one has to know or believe in order to operate in a manner acceptable to its members. Culture is not a material phenomenon; it does not consist of things, people, behavior or emotions. It is rather an organization of these things. It is the form of things that people have in mind, their models of perceiving, relating, and otherwise interpreting them (Goodenough, 1957, p. 167).*

Theoretical Perspective

Three hypotheses formulated by Spencer developed the concept that cultures form groups or subcultures to perform specialized functions. Although society exists as an entire entity, it is important to remember that each part has a distinct character. Spencer's (1988) first hypothesis was that, as societies increase in mass or size, the culture would also increase in structure. Therefore, when examining organizations, the larger an institution becomes, the more segmented and orderly it becomes in handling the distribution of its knowledge and information.

The second hypothesis emphasizes that the increase in structure produces an increase in differentiation (Spencer, 1988). In other words, the structural processes produce subcultures that are involved in different tasks and distribute a variety of information. So, a large organization develops individuals with a specific knowledge base with them intent on achieving different goals and responsibilities.

Spencer's (1988) third hypothesis states that, as societies increase in differentiation, there is an increase in dependency. This concept leads to parts of an organization or culture having such distinct knowledge and responsibilities that they are dependent on other parts of the organization to perform as a whole. Spencer used the analogy of a living organism to help explain the three integrated hypotheses, which explained how a society becomes more and more dependent and specialized.

Spencer's structural-functional perspective relates to the concept of knowledge distribution in that, although an institution works together, the individual subcultures have a distinct social knowledge that helps them to function as a unit. Spencer's theory is directly related to Durkheim's concept of a collective conscience and organic solidarity.

The collective conscience or culture exists in small societies that have few and independent parts. The collective conscience helps individuals understand and communicate with each other. This mechanical solidarity is based on a cultural togetherness that is grounded in an extensive amount of shared knowledge. The relationships are usually characterized by high volume and by highly intense interactions (Durkheim, 1933). Therefore, the collective conscience seeks to help individuals conform to cultural norms and ideologies.

However as societies become larger with more diverse parts, the opposite is true. The organic solidarity that results is considered the

breakdown of the collective conscience as a distinct division of labor marks individuals. Organic solidarity is the loss of a clear morality that can be followed by society. Cohesion is instead found in dependency and not a collective culture or clear moral order. Organic solidarity is the result of the breakdown of a clear moral order and is increasingly marked by a diverse and complex culture (Durkheim, 1933).

The distribution of social knowledge in a society with organic solidarity is marked by an increasing reliance on collective representation or stored information that is released from memory when needed. An organization consists of diverse subgroups with specific knowledge in their cultural context. As an organization gets larger and more diverse, there is a concern about the information and how it is shared and stored. The social knowledge of a large organization has to be effectively managed in order to achieve overall success.

The Management of Cultures (Information)

"It is possible to regard all culture as information and to view any single culture as an 'information economy' in which information is received or created, stored, retrieved, transmitted, utilized, and even lost" (Roberts, 1964, p. 438).

As cultures increase in size and complexity, the distribution of knowledge and culture is affected. The diversity of individuals produces

groups of people; each with their own shared cultural knowledge. "How do such various individuals organize themselves culturally into orderly, expanding, changing societies" (Wallace, 1961, p. 27)? Wallace's writings on culture and personality asked this very necessary question about the organization of diversity. He goes on to emphasize that individuals and groups are in continuous conflict and cooperation from situation to situation.

As people increase their interaction, groups of individuals develop similar cultural knowledge or 'cognitive maps.' Cognitive sharing organizes the diversity of individuals. Wallace (1961) emphasizes that individuals share the same 'cognitive map' because of high levels of interaction and communication. As the amounts of information increase, groups of people start to develop their own cognitive maps that are unique to their life and responsibilities. This sharing of cultural knowledge among groups allows for the successful operation of institutions. Studying the distribution of knowledge is actually researching subgroups 'cognitive maps' of information.

Roberts' (1964) original research involved smaller, 'simpler' cultures as they managed their vast amounts of social knowledge. His writing can be used to explain how cultures organize their diversity. According to Roberts (1964), the self-management of cultures consists of three major processes: informational storage, information retrieval, and decision making.

The concept of informational storage, when applied to large, complex organizations, results in individuals with limited capacity to comprehend their

entire culture. In other words, as individuals have more knowledge to absorb, they become more specialized in what they choose to store. Therefore, information is stored by groups of individuals with similar knowledge for similar responsibilities (Roberts, 1964).

Roberts (1964) makes clear that an integral part of information retrieval is the ability of each individual to communicate with one another. As the size of the institution increases individuals need to store more information. Interpersonal communication allows for the stored information to be scanned and retrieved for use. A culture with diverse groups of people is better able to retrieve information during interaction and through the various communication systems of the society.

Lastly, the distribution of cultural information involves decision-making. This phase of the information economy recognizes the changes and evolution that takes place in a society. As an institution changes, the decision-making involved is very complex and beyond what is necessary in order to understand the distribution of social knowledge. For the most part, an effective institution would take into account the diversity of a culture and the needs of individuals and groups in order to successfully change (Roberts, 1964). Consensus analysis can be used to examine cultures and the information they store as well as realize the extent to which subgroups exist.

Consensus Analysis

"... The central idea of consensus theory is the use of the pattern of agreement or consensus among informants to make inferences about their knowledge of the answers to the questions" (Weller & Romney, 1988, p. 74).

In many instances, consensus analysis is used as both a theoretical guideline and as a methodology. As a theory, it speaks to the specific knowledge of individuals. The more 'right answers' that individuals have on a specific task indicates their cultural competence or amount of specific social knowledge (D'Andrade, 1995, p.212-216). As a methodology, it provides a way for researchers to recognize the culturally correct answers to specific questions (Weller & Romney, 1988). The theory and method work together so that once the researcher knows how knowledgeable each informant is, one can then figure out the culturally correct answers.

The consensus model has three assumptions that will allow for the use of the theory and methodology. The first assumption is that there is a Common Truth. This assumes that all informants are from a common culture and are responding to the questions based on a common knowledge and understanding (Romney, Weller, & Batchelder, 1986, p. 317). Any variability in the answers to the questions is the result of a different knowledge capacity and is not evidence of a separate subculture.

The second assumption is called Local Independence. It assumes that each individual's answers are given independent of other informants' answers

(Romney, et al., 1986, p. 317). Although they could be guessing the answers, they are not copying the answers from other informants. The second assumption also implies that the only reason informants are selecting certain answers is because the answers chosen are considered the cultural truth. The answers are based on informants' "competence with respect to that domain of knowledge" (D'Andrade, 1995, p. 215).

The last assumption is called the Homogeneity of Items. This third assumption is concerned with the domain of questions. The primary assumption is that all the questions are on the same difficulty level. However, more realistically, it would be better to assume that informants that do well on one section of questions will also do well on another set of questions. It also entails that all of the questions have a culturally correct answer and are from the same topic or domain. (Romney et al., 1986, p. 318).

There are a variety of methodologies used for consensus analysis. Some researchers use true/false or multiple choice questions on various topics. Others ask informants to categorize items and concepts, such as fish (Boster & Johnson, 1989), diseases (Weller, 1984), or plant types (Boster, 1985). The consistent part of consensus analysis is in the type of information being elicited. The informants should not be asked about their preferences or experiences. The gathered knowledge should be focused on the possible information available to them not on any personal or biographical information. Regardless of the technique, the concept and theory remains the same. The

object of consensus analysis is to find out how much each informant knows and pinpoint what each informant knows about a specific domain. The main focus of consensus research is the informants and not the answers. The analysis consists of comparing informant answers. The informants that agree the most with others are considered the most culturally competent. These individuals' answers are weighed greater than those informants who agree less with others are. Therefore, the most culturally competent individuals' answers are weighted more than those who are not unusually in agreement with the others.

More specifically consensus analysis constructs an informant-by-item matrix. This matrix is then transformed into an informant-by-informant chance-corrected agreement matrix. The informant-by-informant matrix is chance-corrected to account for the possibility of guessing by each respondent. Minimum residual factor analysis is conducted to calculate the estimate of competence. The degree of consensus is designated based on the ratio of the first factor's Eigenvalue to the second factor's Eigenvalue. It is considered a strong consensus if the first Eigenvalue is three times the amount of the second Eigenvalue (Cameron & Gatewood, 1994; Romney, et al., 1986).

However, it should be noted that the informants who are considered the most culturally competent are not necessarily the most knowledgeable. Consensus analysis measures how culturally correct an answer is from one

informant to the next. Consensus does not measure what the actual 'right answer' is in a set of questions. For example, if most informants said that the average SAT score for high school seniors was 1000 and the actual answer was 1150, those that answered 1000 would be more culturally competent but not necessarily correct or factual. Therefore, anyone that answered 1150 would not be considered as culturally competent as someone who gave the most common answer, even though, in actuality, theirs was the 'correct' answer (J. B. Gatewood, lecture, April 1998).

Moreover, the central idea behind consensus theory is to find the most culturally competent individuals and the culturally correct answers about any given subject area. The respondents are correlated and weighed according to their agreement with other informants (Weller, 1987). In short, the consensus model measures the shared knowledge of the culture (Romney, Batchelder, & Weller, 1987). The research that follows uses consensus analysis to measure informants' knowledge about undergraduate admission at a medium-sized, private university.

Social Network Analysis

"People are not social structure; the interaction of people may be structured, but here I am concerned with the interaction of interactions" (Sailor, 1978, 74).

Social network analysis is the study of individuals and their relationships to each other. More importantly, network analysis focuses on the interactions of entities as a framework or structure separate from the study of the individuals themselves. Individuals or actors are defined by their relationships (or lack of) to each other, as well as by the actual structure of those relationships in the organization. Attribute variables, in combination with relational information, add some explanatory information that would otherwise be left undiscovered (Knoke & Kuklinski, 1982).

The social network perspective has several assumptions about the informants, relationships, and the framework that make it easier to understand the research process of network analysis. One assumption takes into account that the actors being studied are not independent units, but are instead interdependent upon each other. Individuals are inter-reliant and are studied as a whole and not as distinct actors or informants. Also, it is assumed that the relationship connections can exchange anything from information to resources to support (Wasserman & Galaskiewicz, 1994).

Two other assumptions concern the network model itself. The network is understood to provide opportunities or to restrain individual behavior. The network is, therefore, seen as an entity of itself that influences actions,

attitudes, behavior, and beliefs. Another assumption about the network as a model is concerned with the concept of structure. The network is assumed to be a pattern of relationships distinct from the actual individuals involved (Wasserman & Galaskiewicz 1994).

Social network analysis can be performed on relationships between individuals, as well as those between objects and events. The study of networks can focus on any type of interactions, that are social or work related, intense or weak relationships, and can either be one sided or two-sided in their connection to each other (Knoke & Kuklinski, 1982). Meaning that one person or both can remember the interactions they have with each other. The nature of network analysis involves researching and analyzing the character of social behavior and how it influences perceptions, beliefs, actions, and social knowledge.

2 ... RESEARCH DESIGN

Research Questions

"Not where we stand, but in what direction we are moving" (Goethe).

The research design conjoins consensus analysis with social network study to better explain and understand how social knowledge is distributed in an organization. All of the informants are faculty and administrators involved in undergraduate admission at a medium-sized, private university. The knowledge being 'tested' is their opinions about the characteristics of the students at the institution. The four hypotheses are concerned with what variables predict the distribution of knowledge in an organization. A non-experimental, non-observational, descriptive study of the distribution of social knowledge explores four correlational hypotheses. The purpose of which is to try to explain what influences the distribution of social knowledge.

The information that is gathered must first be used to discover if the administrators and faculty involved in undergraduate admission have a common culture. The questions pertain to their opinions about undergraduate students in various stages of the admission process. The preliminary question of the study is to determine if the informants have a common cultural understanding about students at the university.

The first hypothesis focuses on the effects of status and roles on the distribution of social knowledge. The main concept centers on similarities and differences in status and whether similar status produces similar understandings and knowledge. The first hypothesis focuses on each status group developing different understandings of the social knowledge surrounding undergraduate students.

The second hypothesis addresses the interaction among informants. The idea concentrates on dyadic social interaction and beliefs. The hypothesis will explore whether actors' knowledge is similar to those they interact with. In other words, informants who interact frequently will develop similar perspectives and beliefs about the students.

The third hypothesis involves the network position of an individual. Individuals that are central in the communication network will have an increased amount of social knowledge. An informant more central or 'active' in the network will be more representative of the group and have a higher consensus score then an informant more peripheral to the group.

The final hypothesis deals with the fact that individuals learn the social knowledge through diffuse, multi-source saturation. This fourth hypothesis focuses on aspects that are not a condition of interaction, but instead depend on such factors as age, how long one has worked at the university, whether other family members have attended the university, etc. Therefore, social

knowledge would not be dependent on mentors or single learning experiences, but instead occur through a variety of sources and experiences.

Literature Review

"Only those things are beautiful which are inspired by madness and written by reason." (Andre Gide)

The majority of the literature and investigations being done in social networks focuses on the networks themselves. In other words, the informants are usually questioned about their knowledge of the network as well as their participation in it. The actors are not chosen and questioned based on a particular domain of knowledge but are instead studied to ascertain the network itself. Therefore, the network is used as the body of knowledge being studied. The main objective for this vein of research is to warrant the use of cognitive data in place of behavioral data.

In contrast, this current project elicits the network from the informants to be used as a description of the informants along with other demographic information. For this reason, although there will be similarities presented from the literature reviewed, they will be unlike the actual project presented. The similarities will be based on the types of hypotheses being presented and not necessarily on how the knowledge is gathered and used in the research.

A study completed by Boster, Johnson, and Weller (1987) is similar in subject matter and to the first hypothesis on status. The informants were all from a university administration office and were questioned about other people involved in the research. The techniques used were pile sorts and triad tests to gather information about similarities of individuals, sorting individuals into groups of their choice, and ranking individuals according to their importance. Among other hypotheses, Boster, Johnson, and Weller (1987) were investigating whether informants' status in the organization would affect their knowledge about the network. It was found that the actors shared a cultural consensus about the social structure of their administration, and their status did affect knowledge about the network. Informants with 'higher status' agree more with other informants than those with 'low status' (Boster, Johnson, & Weller, 1987).

Another study researched the role of social resources and the use of one's social network in the process of status attainment. The hypotheses loosely focused on status and knowledge of resources (Lai, Lin, & Leung, 1998). New York area males were interviewed about their exposure to occupations through family and friends, the process used to change jobs, opinions about their current job, and various other occupational questions. The research examined the use of personal resources to come into contact with those of 'higher status'. Those with 'higher status' were found to have more knowledge to help informants increase their own status or occupation.

The main idea related to the current research project is that those with 'higher status' have more awareness of other job networks (Lai, Lin, & Leung, 1998).

Research journals are cluttered with articles about the influence of communication and interaction on individuals. However, any connection between knowledge and interaction are indirectly related to the social network itself. Friedkin (1982) examined the effects of different strength ties on the flow of information. Another project on organizational culture studied the effects of interactions and the network on people's interpretations of the characteristics of individuals that they work with (Krackhardt & Kilduff, 1990).

Friedkin (1982) researched the information flow of scientific faculty members at two universities. The informants were asked questions pertaining to their knowledge of the work of their immediate colleagues. For instance, a faculty member at one university was only asked about other faculty members in his own university and in his particular academic division. The results showed that there is a difference between weak ties and strong ties; however, increased interaction between actors in a network increases information flow (Friedkin, 1982). This directly relates to the second hypothesis in that increased interaction produces individuals with increased social knowledge.

A second study focused on organizational diversity as a property of informal relationships within the workplace (Krackhardt & Kilduff, 1990). The informants worked for the same organization and were asked about similarities and differences of individuals. They were then asked to label and

describe the similarities and differences. These were considered constructs that characterized behavioral styles in the organization. Secondly, the actors checked the names of other workers who they considered friends. Krackhardt and Kilduff (1990) found that the social network of individuals can be used to show that actors who interacted more frequently or were considered friends shared a similar understanding of behavioral styles at work as well as who the styles described (1990). In other words, social knowledge is similar in individuals who interact more frequently.

The majority of the social network literature and research that looks into an actor's position in the network focuses on any type of position and how this affects knowledge and opinions. Meaning, that individuals are compared based on similarity of position in the network, such as centrality, and other aspects of the network. Some research by Buskens (1998) looked specifically at centrality as a factor in trust, which is similar to the third hypothesis that considers centrality in the network as a factor of increased social knowledge (1998).

The research conducted on issues of trust during economic and social exchanges looks at informants' centrality in the network to help measure trust as a personal characteristic. The concept considers actor's centrality as an aspect of the amount of trust others give them. The general idea focuses on the buyers and the amount of interactions in their network. It was found that buyers who were central in a network had higher levels of trust in their sellers

(Buskens, 1998). This logically makes sense because sellers have more to lose when dealing with a buyer who is central to a large network. Consequently, if the deal between the buyer and the seller is unsuccessful, the buyer has an opportunity to affect the seller's business. In effect, the trust network centers on the concept of information flow and supports the third hypothesis about centrality in a network producing actors with an increased social knowledge.

The final hypothesis considers the distribution of social knowledge as part of a complete process of multi-saturation from a large variety of factors. A study by Brajkovich (1994) researched the network and the actors' perceptions of the network. A consensus was found to exist about the knowledge of the network and a variety of factors about the informants were taken into consideration. Some of the data considered were job status, work activities, similarities between coworkers, and close interactions with coworkers. The results of the research found that "patterns of judged similarity correspond equally high to each of the organizational structures" and are multiplex (Brajkovich, 1994, p. 191). The network and actors are influenced by a variety of factors within the organization that forms their perceptions about the network itself.

Several researchers examined the influence of individuals' differences and interactions on behavior. Although the research was specifically geared towards examining behavior, it is a step towards learning how a variety of

sources can effect social knowledge. The study examined relationships among graduate students to determine the effects of differences on behavior. The results supported the effects of individual differences on social behavior and incorporated the network between individuals as one of many factors involved in attraction. It was found that individuals were influenced by a variety of personal sources that accounted for their differential social behavior (Wright, Ingraham, & Blackmer, 1985).

Overall, the literature logically and realistically supports the four hypotheses presented. However, the majority of research completed does not investigate a domain different from one associated with the network. The following project was undertaken to examine whether status, interaction, centrality, or a diffuse saturation process affects the distribution of social knowledge.

3 ... METHODS

Where, Who, and What: Methods and Data Collection

"Before you can observe and analyze you need a plan. You need to determine what you're going to observe and analyze: why and how. That's what research design is all about" (Babbie, 1995, p.83).

The setting. The research was conducted at Lehigh University, a private, coeducational university located in Bethlehem, Pennsylvania. The university has a little over 4,000 undergraduate students and approximately 400 full-time faculty members. The sample was drawn from the administration and faculty members who are directly involved in undergraduate admission.

The admission personnel choose from over 8,000 applicants, of whom 1,000 will decide to be a part of each entering freshman class. The entering class usually has an SAT range from 1150-1330. The plurality of them will choose academic endeavors in the College of Arts and Sciences (41%), a little over a third will be in the Engineering and Applied Sciences College (38%), and the remaining will choose the College of Business and Economics (21%). The university offers a wide variety of activities and Division I intercollegiate sports for men and women. The overwhelming majority of upper-class students are affiliated with the Greek Life system (41% of men and 42% of women). In addition, there are over 130 student organizations with interests widely varying, from politics to music to religion to volunteerism.

The sample. The sample of 51 informants was created and grown from 5 preliminary interviews. The preliminary informants were individuals targeted for their daily and professional involvement in undergraduate admission. Each preliminary informant was personally asked to give an exhaustive list of individuals at Lehigh who are directly involved in undergraduate admission. No limitations were given and the list could include faculty, students, staff, coaches, admission professionals, or anyone they could think of who had direct involvement in undergraduate admission at Lehigh University.

The five preliminary informants created a list of 63 original names. However, there was a large amount of overlap between lists, as well as general categories given, such as "all the coaches" and "everyone in the admission office". Since the project was investigating undergraduate admission, everyone in the admission office was chosen as informants. The next step that needed to be considered was the size of the admission office as a comparison group. The analysis of some of the hypothesis required that other groups not overwhelm the number of admission personnel. Therefore, all coaches and secretaries were eliminated from the informant list to reduce the number of participants.

Secondly, the Arts and Sciences and Engineering Colleges were chosen to have equal representation relative to the size of the college and the number chosen from the admission office. The College of Business had a few less faculty members than the other two colleges relative to the number of

faculty in the school. Also, all of the Deans were chosen as informants because undergraduate admission is part of their professional responsibilities. The sample also included other key administrators who were neither Deans nor admission personnel.

The final list of informants to be contacted for interviews totaled 57. However, 2 refused to participate because they felt they were not involved in undergraduate admission, 1 informant was on sabbatical, 1 no longer works at the university, and 2 could not find time in their schedule for an appointment. Therefore, the final sample was stabilized at 51 completed interviews.

The Data. All of the informants were personally contacted and interviewed. Each individual was asked to read and complete an informed consent form and was given a copy for their benefit (see Appendix A). The informants were promised confidentiality, but not anonymity. The nature of social network research would make it so that others would be aware of their *possible* participation in the project and therefore anonymity could not be maintained. The network questions asked about their interactions with others in the sample.

Each informant was asked typical demographic information, such as age and sex as well as research specific information (see Appendix B). Some other questions asked were their current position at Lehigh, what college, if any they were affiliated with, the number of years they have worked at Lehigh,

and the number of years in their current position. Some more ethnographic information was requested which included whether they attended Lehigh and if any of their children attended Lehigh. Two open-ended questions asked if they did or would encourage their children to attend Lehigh and what admission activities they are involved in during the typical year. The demographic information would aid in the analysis of the hypothesis on multi-saturation.

The second part of the interview consisted of the informant completing a written multiple choice questionnaire called the Admission Knowledge Quiz (see Appendix C). The admission knowledge quiz is used to isolate a domain of knowledge for consensus analysis. The 'quiz' is a thirty-question multiple-choice survey that asks for opinions about the characteristics of Lehigh students. The knowledge quiz was created for the purposes of this project and by the primary researcher. Because of time constraints, it was impossible to grow the quiz ethnographically. Instead, the use of my prior knowledge and first-hand experiences in undergraduate admission was used in the development of the knowledge quiz. The quiz took into account the following types of information: nature of prospective, accepted, and enrolled students, attractions and 'turn-offs' of Lehigh, adjectives to describe Lehigh students, Financial Aid, enrollment competitors, geographic information, background of students, career aspirations, SAT scores, class ranks, and activities of the students. The admission quiz

needed to include the physical, mental, social, psychological, and demographic aspects and factors that make up students.

The knowledge quiz was broken into three sets of ten questions. The first set of ten asked the informants to consider the nature and characteristics of prospective students or students who have yet to be accepted to Lehigh. The second set of ten questions asked their opinions about the characteristics of students accepted to Lehigh. The last set of questions focused on students that have decided to matriculate to the university in the fall, and this could include opinions about currently enrolled students.

The last part of the interview asked the informants about their interactions with other individuals who could possibly be involved in the research project. There were four social network questions that asked about various types of communication topics (see Appendix D). The network questions would be used to measure the peer group network and analyze the hypotheses about centrality and dyadic interaction. Each question required the actor to mark whether they recognized the person's name or mark how often they interact with every other informant. The choices ranged from 'Don't know them' to 16+ interactions per month. The first question asked the actor to specify how often in a typical month he interacts with the others in the admission peer group network. The second through fourth questions asked about specific types of interactions such as social contact, admission, or student related communications. The three questionnaires took less then one

hour to complete and seemed to be enjoyable, if not interesting to each informant.

4 ... FINDINGS

Results

"Results! Why, man, I have gotten a lot of results. I know several thousand things that won't work." (Thomas A. Edison)

Demographics. The majority of the 51 informants were between the ages of 41 and 50 (43.1%). Approximately one fifth of them were between 51 and 60 years of age (21.6%). The rest of the population was somewhat evenly dispersed between the ages of 25 and 30 (9.8%), 31 and 40 (21.6%), and over 60 (13.7%). The median age was 47 years. The vast majority of those interviewed were male (70.6%).

A little over half of the respondents were faculty members (54.9%) and the rest were admission professionals (19.6%), other administrators (13.7%), or Deans of a college (11.8%). A slight majority was affiliated with the Arts and Sciences College (27.5%). However, a quarter of the informants were affiliated with the Engineering College (25.5%) and a little over a tenth were a part of the College of Business (15.7%). The rest (31.4%), by the nature of their position, were not affiliated with a college. The majority of those interviewed had high admission involvement (62.7%). The high involvement was coded by responses that mention 5 or more activities per year or undergraduate admission as part of their professional responsibilities. A little

less than one third had medium involvement or 3 to 4 activities per year (31.4%). Several individuals had a low admission involvement score that meant 1 to 2 activities per year (5.9%).

A slight plurality of the informants had worked at Lehigh University between 10 and 20 years (41.2%). The next largest group of individuals had worked at Lehigh for less than 10 years (31.4%). The rest of the informants were split between working at Lehigh for 21 and 30 years (13.7%) or more than 31 years (13.7%). A little less than half of the population interviewed had been in their current position for less than 10 years (47.1%). A third of them have been in their position at Lehigh for 10 and 20 years (33.3%). Over one tenth of the informants have been in their position for 31 or more years (13.7%). The few that are left were in their current position for 21 and 30 years (5.9%).

The majority of those interviewed had not attended Lehigh University for any of their education (80.4%). However, 10 of the informants had attended Lehigh for all or part of their education (19.6%). Of the informants interviewed who had children, a little less than half had sent their children to Lehigh to further their education (43.6%).

A little over half of the informants had encouraged or would encourage their children to come to Lehigh (60.8%). Most stated Lehigh's excellent reputation and financial benefits as factors. A third said that they would not encourage their children to attend Lehigh (33.3%). Most mentioned that it

would be difficult for their children to attend a university where either parent taught or was in a high profile administrative position (see Table E1).

Ethnography of the Network. At first inspection of the picture of the network (Krackplot 3.01G, Krackhardt, Blythe, & McGrath, 1996), the informants appear to be tightly connected. However, upon a closer examination, obvious patterns emerged among the undergraduate admission peer group. As shown in figure 1, the Deans (D#) and one 'other' administrator (0#) are central figures in the network. They are shown in the middle of the figure and interact frequently with the faculty, other administrators, and admission personnel.

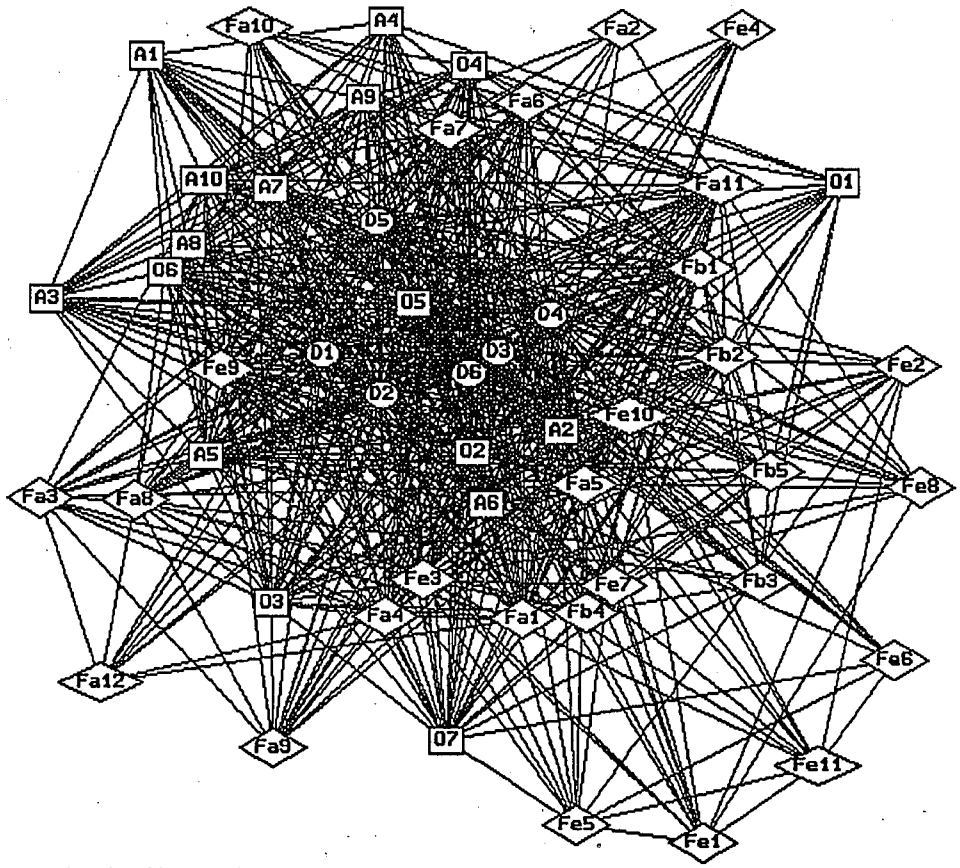

Figure 1: The Network of all reported professional and social interactions
Legend: A# = admission personnel; D# = Deans; O# = other administrators; Fa# = Arts & Sciences faculty; Fb# = Business faculty; Fe# = Engineering faculty

The admission personnel (A#) are a tightly connected group shown on the far left of the figure. Except for one or two of them, the majority of their connections are highly intense interactions with other admission personnel. Also, they are somewhat connected to the Deans and several of the 'other' administrators. However, their interactions are few and far between with the faculty of any college.

The faculty (Fa#, Fb#, or Fe#) are very peripheral to the peer group network. They have some connections to each other, especially with colleagues in their own college, but for the most part are isolated. However, they do have some infrequent interactions with the Deans of the colleges.

The connections and interactions between the Deans, administrators, and faculty are very telling of the undergraduate admission peer group. The network appears to be held together through the informants' interactions with the Deans of the college. The faculty mostly interacts with other professors in their college and the Deans. The admission personnel are connected to each other and the Deans. Therefore, everyone is connected through the Deans and they are then responsible for the dissemination of information about undergraduate admission. The Deans must exchange information and knowledge to/from the faculty and to/from the admission personnel.

Consensus Analysis (consensus factor1). An informant-by-item matrix is used to determine if a consensus analysis exists among the sample by measuring similarity of the informants' answers. The pairs of identical

answers are used to compute the proportion of matches (Anthropac 4.95x, Borgatti, 1998). The group was shown to have a cultural consensus with a ratio of consensus factor1 Eigenvalue (19.144) to consensus factor2[1] Eigenvalue (3.835) of 4.992. It is recommended that the first Eigenvalue be three times the amount of the second Eigenvalue. The ratio of the first Eigenvalue to the second Eigenvalue is much greater than the recommended minimum for a strong consensus. The mean competence score was .601, which means that on average each informant knew the answers to 60% of the admission knowledge questions (See Table E2 for the culturally correct answers and Table E3 for the questions and selected responses of the whole sample).

Hypothesis A: Informants with similar status or roles in the organization will develop similar understandings of the domain of knowledge. The status of the informants was compared using one-way analysis of variance (ANOVA). The mean competence score of each group was compared using ANOVA to determine if the groups vary more than expected by chance. The first ANOVA was run using the four status groups of admission personnel (mean = .6120) other administrators (.6114), deans (.5900), and faculty (.5982). The ANOVA's F statistic was .061 (df = 3/47) with a significance of .980. The four groups' means were virtually the same and consequently the four status groups do not differ more than expected by chance. A second ANOVA was

[1] The unanticipated findings of consensus factor2 are reported starting on page 39.

run with just two status groups with faculty (mean = .6061) as one group and the administrators and deans in the other (.5982). The ANOVA's F statistic was .051 (df = 1/49) with a significance of .822. Therefore, the two status groups do not differ more than expected by chance.

Although the status groups do not differ more than expected by chance there is an interesting finding that results from their separation. The administrators (mean = 6.181) and faculty (mean = 6.094) have a relatively high group consensus ratio, whereas the Deans' (mean = 2.765) is lower than the other two groups. Also, when the Deans are analyzed with either the administrators (mean = 5.688) or the faculty (4.905) the ratio is somewhat lower then before. Moreover, the faculty and administrators consensus ratio (mean = 5.486) is higher then when the sample includes the Deans. (See Table E2 for each status groups' 'correct' answers and their resulting consensus ratio).

Hypothesis B: Informants' beliefs resemble those whom they interact with more often. The second hypothesis compares matrices. The first matrix is a respondent-by-respondent knowledge similarity matrix that pairs together the informants on the percentage of questions for which they choose the same answer. The second matrix is also a respondent-by-respondent matrix that compares interaction frequency. The two matrices are QAP correlated (Quadratic Assignment Procedure), which is an inferential test to compare the similarity between two matrices (Ucinet IV version 1.66x, Borgatti, Everett, &

Freeman, 1996). QAP first calculates a Pearson r and then randomly permutes the rows and columns to recompute the correlation (Anthropac 4.95x, 1996).

A choice had to be made about the values of the interactions. The informants were asked to give the number of times a month they interacted. The scale could be from 0 to 16+ times per month, which was recoded 0 to 4. The interaction matrix averaged a pair's valued interaction. Therefore, if one person said the interaction was a 4 and the other said a 1, the interaction value is the average or 2.5. However, other choices could have been made including but not limited to minimum, maximum, or sum. For instance minimum would have chosen the interaction value that was the least in the pair of actors. Upon examination of the valued interaction claims of the individuals, it was found that some people claimed higher interactions (outDegree) with others than they were claimed (inDegree). For, example the Deans had other individuals claim them far more often then they claimed others (see Table E4 for valued interactions and number of interactions with others). Logically, because of the Deans' high profile position, others would remember interacting with them more then they would remember the large number of individuals they interact with. Therefore, the average method was chosen to account for individuals with higher number of interactions and/or faulty memories. Also, the average method does produce better correlations than the other possible methods that could have been used.

The QAP-r showed that there is a significant relationship between interaction and knowledge similarity. Although none of the relationships is strong, the best indicator was the overall interaction network with a QAP-r of +.137 and a significance level of .008. The social network (QAP-r = +.111), admission communication network (QAP-r = +.109), and the student communication network (QAP-r = +.116) were all significant (p = .028, .040, and .017 respectively), but not as strong as the overall network.

Hypothesis C: Informants that are central to the network (more information passes through them) tend to have more accurate knowledge than those who are peripheral to the group do. Each informant's competence score from the consensus analysis is correlated with 4 different measures of network centrality. All of the centrality measures were computed from the network that includes all forms of communication. The average of a pair's interaction values was used for the correlation (Ucinet IV Version 1.66x, 1996).

The first centrality measure is degree centrality that considers the actors based on the volume or number of others they are connected to. An actor with high degree centrality would have direct contact with a large number of other people. Therefore, they would come into contact with a higher number of other actors and are a channel for information flow. A person with low degree centrality would be on the periphery of the group and not part of the main flow of interactions and information (Freeman, 1978/79).

A second measure of centrality is called betweenness centrality and considers how often actors are between other actors. An actor's betweenness centrality is measured by calculating the number of times pairs of others are only connected through him. An actor with high betweenness centrality controls the flow of information between other actors. However, for the centrality measures of degree and betweenness, it is assumed that information and communication flows through the shortest paths or geodesic and not other possible paths (Freeman, 1978/79).

The third measure of centrality used for this project is flowbetweenness. Flowbetweenness is similar to betweenness, but is a more advance measure because it can capture the nature of more intense and complicated networks. Although flowbetweenness measures the number of pairs that are connected through an actor, it differs in two ways from betweenness. Firstly, flowbetweenness takes into consideration the strength of the connections and can be used on valued interactions, such as once per month versus four times per month. Secondly, flowbetweenness does not limit itself to measuring the shortest path as betweenness centrality does. Instead flow examines all independent paths regardless of length (Freeman, Borgatti, White, 1991).

The last measure of centrality used was information centrality. Information centrality also takes into consideration that communication can and does move through paths other than the geodesic. In information

centrality, all paths are considered as possible information pathways. Information centrality is considered a better method for complicated, changing networks. All paths between actors are considered to determine which person is the most central (Stephenson & Zelen, 1989).

All four measures of centrality explained above were used to test the third hypothesis. When the competence scores were correlated with each centrality measure, only information centrality ($r = +.284$, $p > .05$) was a significant, but not a strong relationship. Degree centrality ($r = +.171$), betweenness centrality ($r = +.090$), and flowbetweenness centrality ($r = +.140$), had significance levels greater than .05 and, therefore, were not factors in the distribution of undergraduate admission knowledge.

Hypothesis D: Informants learn the undergraduate admission knowledge from diffuse, multi-source, saturation. The last hypothesis examines the cultural competence score and measures of Lehigh experience, as well as other demographic information. The informants' cultural competence score was correlated with their 'demographic variables.' The variables used were age ($r = -.083$), sex ($r = -.130$), number of years at Lehigh ($r = +.006$), number of years in their current position ($r = -.012$), whether they ($r = -.003$) or their children ($r = +.082$) attended Lehigh, admission involvement ($r = +.126$), and percent of the 51 other people that are known to them ($r = +.134$). None of the above variables are significantly correlated with

consensus factor1. All of the correlations' had greater than a .05 significance level.

Consensus Analysis (consensus factor2). Minimum residual factor analysis, the last stage of consensus analysis, produces more than one factor. Consensus factor1 represents the extent to which informants agree with one another, the extent to which they share a common culture. By contrast, consensus factor2 reflects the main way in which informants differ from one another. And, as discussed previously, it is the ratio of these two factors' Eigenvalues that signals whether the assumptions of the consensus model have been met in a given case. While not yet standard practice, a more detailed exploration of the second factor can yield interesting insights.

Boster and Johnson (1989) researched novice and expert informants' similarity judgements about fish. They found there was a cultural consensus, but contrary to expectations, novices and experts did not differ significantly in their consensus factor1 scores. The novice/expert gradient, however, was very clear in their consensus factor2 score. That is, the novice versus expert groups were indistinguishable on the first factor, but the second factor showed a strong segregation.

A similar group difference was found in the admission knowledge quiz informants. The comparison of first and second factor formed two groups of individuals. Figure 2 shows that there is a spread among the informants on

factor2. There appears to be a cluster of individuals at the top of factor two and a cluster at the bottom. A median-split on the respondents' consensus

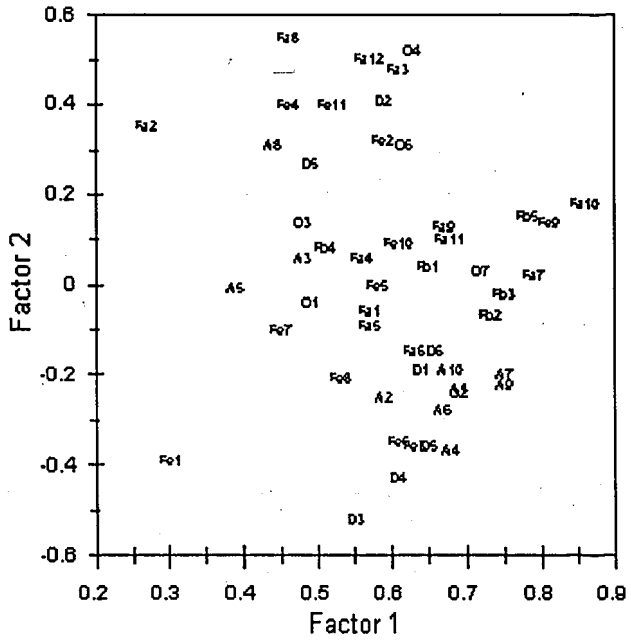

Figure 2: Consensus analysis of "Knowledge quiz"; Consensus factor1 and factor2

factor2 cultural competence scores produces two sub-groups. The first were the respondents with the 26 highest consensus factor2 competence scores and the second group are the 25 lowest competence scores on consensus factor2. A consensus analysis was run on the two groups and their factor ratios are higher because producing the two groups reduces in-group heterogeneity and thus each will be more alike than the whole. The high consensus factor2 group has a ratio of 7.410 with a mean competence score of .637. While the low consensus factor2 respondents had a ratio of 8.716

and the informants knew the answers to 65% percent of the questions (Anthropac 4.95x, 1998).

Boster and Johnson were looking for an expert/novice gradient in their data (1989). However, the admission knowledge quiz sub-groups were initially a mystery as to who and why they are distinct. Therefore, the questions and answers were examined to clarify the meaning behind the subgroups (see Table E3 to compare the questions and selected responses of the whole sample and high/low consensus factor2 informants). There appears to be a pattern to the questions that each group is answering differently (See Table E5).

The two groups answered 12 out of the 30 questions differently and there appears to be an ideology behind the differences in answers. The high consensus factor2 informants tend to think the students have mid-range SAT scores, are interested in social science/humanities subjects, and are vacationing the summer before college. They also think the students have concerns about the difference between Lehigh and other private institutions as well as questions about campus/life and housing. The low consensus factor2 respondents believe that the students' SAT scores are well over 600 (Verbal/Math) or 1200 total, they are interested in engineering and career/academic services, and are spending the summer before college working/saving for the following school year.

A description of the two groups could possibly follow an 'old-Lehigh'/'new-Lehigh' ideology. High consensus factor2 informants believe that Lehigh attracts and enrolls privileged and moderately talented students who intend to enjoy their college years and are competing with other schools that can offer the students the 'niceties' of college life. High consensus factor2 informants also might consider that their students could take their academic pursuits more seriously and need to spend more time in class and less time socializing. The low consensus factor2 individuals are influenced by an 'old-Lehigh' ideology. This group of individuals tends to believe that Lehigh attracts serious, hard-working, pre-professionals who are looking for an institution that is highly academic but still a financial bargain. The students are viewed as talented and sought by a large number of highly competitive institutions.

Hypothesis A (consensus factor2). The mean competence score on the second factor of the four status groups (admission personnel, other administrators, deans, and faculty) were compared using ANOVA. The four status groups did not differ more than expected by chance ($p = .125$). However, when the one-way ANOVA was run on two status groups (Administrators and Deans verses Faculty) there was almost a significant difference between the two groups ($p = .055$). (Hypothesis B did not use cultural competence scores so the second factor would not show a different result than was found previously.)

Hypothesis C (consensus factor2). The informants' competence score on the second factor were correlated with the four network centrality measures. Degree centrality (r = -.471), betweenness centrality (r = -.380), flowbetweenness centrality (r = -434), and information centrality (r = - .455) were all found to be significant measures of knowledge distribution ($p < .05$). Not only were they significant but they increased in strength from the first factor correlations (Ucinet IV Version 1.66x, 1996).

Hypothesis D (consensus factor2). The last hypothesis correlated the consensus factor2 cultural competence score with variables such as age, sex, and years at Lehigh University. All of the factors, except sex, were not significant ($p > .05$). Sex had a Pearson r of .296 ($p = .017$). Therefore, it was more likely that women would have high consensus factor2 scores.

5 ... CONCLUSION & SUGGESTIONS FOR FUTURE STUDY

Discussion

"In everything we ought to look to the end." (Jean de La Fontaine)

This research has used consensus analysis and social network data to predict the distribution of social knowledge at a medium-sized, private university. The faculty and administrators in the undergraduate admission peer group were asked their opinions about students in various stages of the admission process. They were also questioned about their interactions and communications with each other. Typically social network analysis uses knowledge about the network, whereas this project was unique in its direction. The research centered on a domain of knowledge separate from the network itself.

The research revealed that there is a cultural consensus among the peer group directly involved in undergraduate admission at Lehigh University. Two of the hypotheses utilized typical survey research data. One addressed the issue of status groups having different understandings of students and the second used demographic variable such as age, sex, and length of time at the university to predict cultural knowledge. These typical survey research hypotheses did not in any way predict the reason for the cultural consensus.

However, the measured variables that do achieve statistical significance are the hypotheses that examine interaction. Dyadic interaction and information centrality accounts for some of the distribution of social knowledge in the undergraduate peer group network. The two hypotheses that used interaction and network analysis were the only significant findings. Therefore, overall interaction among the peer group does influence the distribution of knowledge.

Upon closer inspection of the consensus analysis, there appear to be two distinct models concerning opinions about prospective, accepted, and enrolled students. The group dynamics found on factor2 were unanticipated and revealing of underlying ideologies in the peer group. One group seems to have a very idealistic view of the students at Lehigh. This group of informants believes that the students are highly academic and are using Lehigh as a stepping stone to the life that awaits talented and motivated individuals. The second group of informants sees Lehigh students as social butterflies that need to be molded into mature, freethinking individuals. The second look at consensus analysis showed that it is possible that such factors as status and sex could influence social knowledge. There is also the possibility that administrators and faculty have developed different understandings about the students at Lehigh. Another significant finding was that women appear to view Lehigh students as rather privileged individuals that need to be guided through their academic endeavors. The second

consensus factor showed that interaction has an intense influence on the distribution of admission knowledge and it also showed that there is a strong relationship between peer group interaction and social learning. Such that those whom the informants interacts with influences their cultural knowledge.

The findings suggest that this institution could very well be a diverse and multifaceted organization. The cultural consensus showed that the undergraduate admission peer group contains and controls culturally specific information in connection with their responsibilities. The shared knowledge between those in the peer group helps them to function as a unit of individuals with the goal of recruiting a distinct group of first year students. Also, the significant interaction findings suggest that the peer group influence each other and in fact store similar information. The social network findings suggest that interaction among the peer group helps them to retrieve the cultural knowledge that may not be in use everyday, especially among the faculty. Perhaps a comparison group of individuals without specific undergraduate admission experience could be used to determine with certainty that the undergraduate admission peer group is organized diversity.

Suggestions for Future Research

Further exploration is needed to clarify the effects and influences of interaction on the distribution of knowledge among Lehigh's admission peer group. The interaction questions may have been better predictors if they had

included several more questions. The questions added would consider the cyclical nature of undergraduate admission. For instance, one question could have asked about interactions during specific months in the fall or spring to better account for the recruitment programs that faculty and administrators are involved in. Also, to better explore the communication and network influences on the peer group, some direct observation of the network would be helpful. Perhaps several days spent observing admission personnel, faculty members, and deans could help clarify the status groups as well as provide more information about the network itself.

The interaction hypotheses assumed that cultural knowledge about students was socially transmitted through the peer group network. Since these informant-to-informant interactions are not particularly strong, additional data could be gathered to expand the scope of the interaction hypotheses. Perhaps the cultural knowledge is learned from the interactions and connections that the respondents have with students.

Exploring the informants' interaction with students would entail gathering more information about the specific types and amounts of contact that the informants have with the students. The further collection of data would include getting a detailed account of the amount of time each informant spends listening to students. Some topics to consider about their involvement with students would be learning about how often they interact with students,

typical conversations they have with students, and the majors they most often interact with.

However, there is another possible way that the peer group network learns the social knowledge. It is possible the individuals involved in undergraduate admission learn and form opinions about students 'instantly' through several initial contacts with students or peers. This quickly formed opinion could be through two or three brief contacts with others and then the opinion becomes 'fossilized' regardless of other contacts or length of time at the university. These are just several of the possibilities that could be used to improve and expand the study of the distribution of knowledge. The research project had some significant findings that warrant further and more in-depth research into the peer group network and subgroups that might exist.

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APPENDIX A: Informed Consent

Informed Consent Form

I, _____, hereby agree to participate as a subject in the research project on the Distribution of Social Knowledge conducted by Dawn E. Murray for a master's degree thesis requirement.

It has been explained to me that the purpose of the study is to learn about the patterning of knowledge in a single organization.

The procedures, which will be used in this study, are two questionnaires.

My participation in the study will involve approximately a 30-40 minute survey.

I understand that I may not receive any direct benefits from participating in this study, but participation may help to increase knowledge that may benefit others in the future.

I understand that any data or answers to questions will remain confidential with regard to my identity.

I understand that my participation is voluntary and that I am free to withdraw from this study at any time without jeopardizing my relationship with Lehigh University.

If I have any questions about this study and what is expected or required of me in this study, I may call or email Dawn E. Murray at (610) 539-0479 and *dema@lehigh.edu* or contact Dr. John B. Gatewood, thesis advisor, at (610) 758-3814 and *jbg1@lehigh.edu*.

Problems that may result from my participation in this study may be reported to Ruth L. Tallman, Office of Research and Sponsored Programs, Lehigh University, (610) 758-3024.

I have read and understand the foregoing information.

_____ _____

Date Subject's Signature

I, the undersigned, have fully explained the investigation to the above subject.

_____ _____

Date Investigator's Signature

APPENDIX B: Demographic Questions

ID# _____

Demographic Information

1. Age: _____
2. Sex: _____
3. Position at Lehigh: _____
4. College: Arts & Sciences Business & Economics
   Engineering & Applied Science None
5. Time/Years at Lehigh University: _____
6. Time/Years in current position: _____
7. Did you attend Lehigh for any of your education? YES NO
8. Do you have children? YES NO = (Skip question 9)
9. Have any of your children attended Lehigh?
   YES, How many? ___ NO
10. Would or did you encourage any of your children to attend Lehigh?
    Why or Why not?
11. Admission's Activities:

APPENDIX C: Admission Survey

Admission Knowledge Quiz ID#_____

A. PROSPECTIVE STUDENTS: Questions pertaining to students interested in applying to Lehigh University

1. Prospective students to Lehigh University are most often from?
   A. Large Cities
   B. Suburbs of Large Cities
   C. Small Towns
   D. Rural Areas
2. Most students are attracted to Lehigh because of the?
   A. Academic Reputation
   B. Campus Layout
   C. Geographic Location
   D. Social Atmosphere
3. The combined SAT scores of Lehigh's prospective students are most often?
   A. Less than 1000
   B. 1000 - 1100
   C. 1101 - 1200
   D. More than 1200
4. Which adjective best describes a prospective's students economic situation?
   A. Unpredictable
   B. Struggling
   C. Comfortable
   D. Wealthy
5. Which adjective best describes a student interested in Lehigh?
   A. Goal Oriented
   B. Hardworking
   C. Highly Motivated
   D. Intellectual
6. What academic programs are most prospective students interested in?
   A. Engineering
   B. Business/Management
   C. Sciences/Mathematics
   D. Social Sciences/Humanities
7. Which of the following types of schools are Lehigh prospectives most often interested in?
   A. Ivy League Institutions (Such as Harvard, Yale, University of Pennsylvania, ...)
   B. Science and Engineering Institutions (RPI, MIT, CAL TECH, ...)
   C. Small Private Institutions (Bucknell, Dickinson, Williams, ...)
   D. State affiliated Institutions (Temple, Rutgers, Penn State, ...)

8. Most of the students interested in Lehigh University would probably spend the summer before college?
    A. In Academic Programs
    B. Hanging Out with Friends
    C. Traveling/Vacationing
    D. Working/Saving for School
9. What about Lehigh is sometimes unattractive to prospective students?
    A. Academic Reputation
    B. Campus Community
    C. Geographic Location
    D. Social Atmosphere
10. Most prospective students to Lehigh are usually concerned about?
    A. Athletic Programs
    B. Career/Academic Support Services
    C. Campus Life
    D. Financial Aid

B. ACCEPTED STUDENTS: Questions pertaining to students accepted for admission to Lehigh University

11. Students who are accepted to Lehigh usually have Math SAT scores in which range?
    A. Less than 400
    B. 400 - 500
    C. 501 - 600
    D. More than 600
12. Students who are accepted to Lehigh usually have Verbal SAT scores in which range?
    A. Less than 400
    B. 400 - 500
    C. 501 - 600
    D. More than 600
13. Students who are accepted to Lehigh have combined SAT scores in which range?
    A. Less than 1000
    B. 1000 - 1100
    C. 1101 - 1200
    D. More than 1200
14. Students who are accepted to Lehigh usually have class ranks in which range?
    A. Top 10%
    B. Top Quarter
    C. Top Third
    D. Top 50%

15. The majority of students accepted to Lehigh have also been accepted to which type of institution?
    A. Ivy League Institutions (Such as Harvard, Yale, University of Pennsylvania, ...)
    B. Science and Engineering Institutions (RPI, MIT, CAL TECH, ...)
    C. Small Private Institutions (Bucknell, Dickinson, Williams, ...)
    D. State affiliated Institutions (Temple, Rutgers, Penn State, ...)
16. Which adjective best describes a student accepted to Lehigh?
    A. Achiever
    B. Disciplined
    C. Intellectual
    D. Social
17. What type of High School do most students accepted to Lehigh attend?
    A. Private High Schools
    B. Public High Schools
    C. Equally Attend Private and Public High Schools
    D. Alternative schools, Magnet schools, Performing or Arts Schools
18. Students accepted to Lehigh spend the majority of their time in which type of extracurricular activity during High School?
    A. Athletics/Cheerleading
    B. Drama & Music Activities
    C. Service Organizations
    D. Social Organizations
19. Students accepted to Lehigh most often have questions about?
    A. Athletic Programs & Other Activities
    B. Campus Life and Housing
    C. Career and Academic Support Services
    D. Academics and Majors
20. Most of the students accepted to Lehigh would spend their summer before college?
    A. In Academic Programs
    B. Hanging Out with Friends
    C. Traveling/Vacationing
    D. Working/Saving for School

C. MATRICULATED STUDENTS: Questions pertaining to students who decide to attend Lehigh University

21. The majority of students who decide to attend Lehigh University have chosen which of the following areas of study?
    A. Engineering
    B. Business/Management
    C. Sciences/Mathematics
    D. Social Sciences/Humanities

22. Which of the following is usually the main attraction to enrolled Lehigh students?
    A. Academic Reputation
    B. Campus Layout
    C. Geographic Location
    D. Financial Aid Package
23. Which of the following adjectives best describes students who decide to attend Lehigh?
    A. Academic
    B. Athletic
    C. Individualistic
    D. Social
24. The majority of Lehigh admitted students have career aspirations to work for?
    A. Government Agencies
    B. Large Corporations
    C. Non Profit Organizations
    D. Small Companies or Firms
25. Most of the students who attend Lehigh spend the summer before matriculation?
    A. In Academic Programs
    B. Hanging Out with Friends
    C. Traveling/Vacationing
    D. Working/Saving for School
26. Students who decide to attend Lehigh are from families who can be described economically as?
    A. Deprived
    B. Unstable
    C. Comfortable
    D. Well off
27. Students who decide to matriculate to Lehigh are most often from?
    A. Large Cities
    B. Suburbs of Large Cities
    C. Small Towns
    D. Rural Areas
28. Students who enroll at Lehigh University usually have second choice schools in which category?
    A. Ivy League Institutions (Such as Harvard, Yale, University of Pennsylvania, ...)
    B. Science and Engineering Institutions (RPI, MIT, CAL TECH, ...)
    C. Small Private Institutions (Bucknell, Dickinson, Williams, ...)
    D. State affiliated Institutions (Temple, Rutgers, Penn State, ...)

29. Most students who enroll at Lehigh will be involved in?
    A. Athletics/Cheerleading
    B. Drama & Music Activities
    C. Service Organizations
    D. Social Organizations
30. What percent of students who attend Lehigh University Receive Financial Aid?
    A. 10% - 20%
    B. 21% - 30%
    C. 31% - 40%
    D. 41%+

APPENDIX D: Network Questions

1. During the **typical** month, how often do you communicate or interact with the following individuals? Communication and interactions include letters, emails, phone conversations, person-to-person contact, meetings, both professional and social

2. During the **typical** month, how often do you interact socially or have non-work related communication with the following individuals? Communication and interactions include letters, emails, phone conversations, person-to-person contact, and meetings.

3. During the **typical** month, how often do you communicate or interact with the following people concerning undergraduate admissions? Communication and interactions include letters, emails, phone conversations, person-to-person contact, meetings, both professional and social.

4. During the **typical** month, how often do you communicate or interact with the following people concerning prospective, accepted, or enrolled/current students? Communication and interactions include letters, emails, phone conversations, person-to-person contact, meetings, both professional and social.

⇒ **POSSIBLE RESPONSES FOR ALL FOUR QUESTIONS:**

- **Don't know them**
- **0**
- **1**
- **2-5**
- **6-15**
- **16+**

Note: The exact questionnaire used in the research project could not be included because it contains the names of the participants. In order to protect confidentiality a modified questionnaire is included with the questions and possible responses.

APPENDIX E: TABLES

Table 1: Demographic Information

Variable Name & Type	Frequencies (N=51)
Age	
25 – 30	5 (9.8%)
31 – 40	6 (11.8%)
41 – 50	22 (43.1%)
51 – 60	11 (21.6%)
> 60	7 (13.7%)
Median	47.0
Sex	
Male	36 (70.6%)
Female	15 (29.4%)
Position/Status	
Admissions	10 (19.6%)
Other Administrators	7 (13.7%)
Dean	6 (11.8%)
Faculty	28 (54.9%)
College Affiliation	
Arts & Sciences	14 (27.5%)
Business & Economics	8 (15.7%)
Engineering & Applied Science	13 (25.5%)
None	16 (31.4%)
Number of Years at Lehigh	
< = 10	16 (31.4%)
10 – 20	21 (41.2%)
21 – 30	7 (13.7%)
> = 31	7 (13.7%)
Number of Years in Position	
< = 10	24 (47.1%)
10 – 20	17 (33.3%)
21 – 30	3 (5.9%)
> = 31	7 (13.7%)
Attend Lehigh	
Yes	10 (19.6%)
No	41 (80.4%)
Children	
Yes	39 (76.5%)
No	12 (23.5%)
Children Attend Lehigh	
Yes	17 (33.3%)
No	22 (43.1%)
N/A	12 (23.5%)
Encourage Children to attend Lehigh	
Yes	31 (60.8%)
No	17 (33.3%)
Other	3 (5.9%)
Admission Involvement	
Low (1-2 activities)	3 (5.9%)
Medium (3-4 activities)	16 (31.4%)
High (Part of job or 5+ activities)	32 (62.7%)

Table 2: Comparisons Of "Correct Answers" To The Knowledge Quiz For The Sample And Status Groups

Q #	Whole Sample	Admin. N=17	Faculty N=28	Deans N=6	Admin & Deans N=23	Faculty & Deans N=34	Admin & Faculty N=45
Q1	2	2	2	2	2	2	2
Q2	1	1	1	1	1	1	1
Q3	***3***	***4***	***3***	***4***	***4***	***3***	***3***
Q4	3	3	3	3	3	3	3
Q5	1	1	1	1	1	1	1
Q6	***4***	***3***	***4***	***1***	***4***	***1***	***4***
Q7	***3***	***3***	***3***	***1***	***3***	***3***	***3***
Q8	4	4	4	4	4	4	4
Q9	3	3	3	3	3	3	3
Q10	***3***	***3***	***3***	***4***	***3***	***4***	***3***
Q11	***4***	***4***	***3***	***4***	***4***	***3***	***4***
Q12	***3***	***3***	***3***	***4***	***4***	***3***	***3***
Q13	***3***	***4***	***3***	***4***	***4***	***3***	***3***
Q14	2	2	2	2	2	2	2
Q15	3	3	3	3	3	3	3
Q16	1	1	1	1	1	1	1
Q17	***2***	***3***	***2***	***2***	***3***	***2***	***3***
Q18	***1***	***4***	***1***	***1***	***1***	***1***	***1***
Q19	***4***	***2***	***4***	***2***	***2***	***4***	***4***
Q20	4	4	4	4	4	4	4
Q21	***4***	***4***	***4***	***1***	***4***	***4***	***4***
Q22	1	1	1	1	1	1	1
Q23	***4***	***4***	***4***	***1***	***4***	***4***	***4***
Q24	2	2	2	2	2	2	2
Q25	4	4	4	4	4	4	4
Q26	3	3	3	3	3	3	3
Q27	2	2	2	2	2	2	2
Q28	***3***	***4***	***3***	***3***	***3***	***3***	***3***
Q29	4	4	4	4	4	4	4
Q30	4	4	4	4	4	4	4
Ratio	4.992	6.181	6.094	2.765	5.688	4.905	5.486

Note for Table E2: See Table E3 or Appendix C for the exact questions and answers. Each question has the possibility of four answers and they are represented as numbers in Table E3 or as a letter in Appendix C (Appendix C, where A=1, B=2, C=3, D=4).

Table 3: Comparison Of Answers To The Admission Knowledge Quiz (Entire Sample and High/Low On The Second Factor)

Q1: Prospective students to Lehigh University are most often from?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Large Cities (1)	2	1	1
Suburbs (2)	***47***	***24***	***23***
Small Towns (3)	2	1	1
Rural Areas (4)	0	0	0

Q2: Most students are attracted to Lehigh because of the?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Academic Reputation (1)	***42***	***21***	***21***
Campus Layout (2)	2	1	1
Geographic Location (3)	2	1	1
Social Atmosphere (4)	5	3	2

Q3: The combined SAT scores of Lehigh's prospective students are most often?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Less than 1000 (1)	0	0	0
1000-1100 (2)	5	2	3
1101-1200 (3)	***29***	***21***	8
More than 1200 (4)	17	3	***14***

Q4: Which adjective best describes a prospective's students economic situation?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Unpredictable (1)	4	3	1
Struggling (2)	0	0	0
Comfortable (3)	***44***	***22***	***22***
Wealthy (4)	3	1	2

Q5: Which adjective best describes a student interested in Lehigh?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Goal Oriented (1)	***31***	***20***	***11***
Hardworking (2)	8	3	5
Highly Motivated (3)	12	3	9
Intellectual (4)	0	0	0

Q6: What academic programs are most prospective students interested in?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Engineering (1)	18	9	***9***
Business/Management (2)	4	1	3
Sciences/Mathematics (3)	10	5	5
Social Sciences/Humanities (4)	***19***	***11***	8

Q7: Which of the following types of schools are Lehigh prospectives most often interested in?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Ivy League Institutions (1)	11	5	6
Science & Engineering (2)	7	1	6
Small Private Institutions (3)	***30***	***18***	***12***
State Affiliated Institutions (4)	3	2	1

Q8: Most of the students interested in Lehigh University would probably spend the summer before college?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
In academic programs (1)	0	0	0
Hanging out with friends (2)	5	4	1
Traveling/Vacationing (3)	12	***12***	0
Working/Saving for School (4)	***34***	10	***24***

Q9: What about Lehigh is sometimes unattractive to prospective students?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Academic Reputation (1)	2	1	1
Campus Community (2)	6	2	4
Geographic Location (3)	***31***	***16***	***15***
Social Atmosphere (4)	12	7	5

Q10: Most prospective students to Lehigh are usually concerned about?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Athletic Programs (1)	0	0	0
Career/Academic support (2)	11	2	***9***
Campus Life (3)	***22***	***14***	8
Financial Aid (4)	18	10	8

Q11: Students who are accepted to Lehigh usually have Math SAT scores in which range?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Less than 400 (1)	0	0	0
400-500 (2)	3	1	2
501-600 (3)	21	***19***	2
More than 600 (4)	***27***	6	***21***

Q12: Students who are accepted to Lehigh usually have Verbal SAT scores in which range?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Less than 400 (1)	0	0	0
400-500 (2)	7	3	4
501-600 (3)	***31***	***20***	***11***
More than 600 (4)	13	3	10

Q13: Students who are accepted to Lehigh have combined SAT scores in which range?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Less than 1000 (1)	1	0	1
1000-1100 (2)	1	0	1
1101-1200 (3)	***25***	***21***	4
More than 1200 (4)	24	5	***19***

Q14: Students who are accepted to Lehigh usually have class ranks in which range?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Top 10% (1)	10	4	6
Top Quarter (2)	***35***	***21***	***14***
Top Third (3)	5	1	4
Top 50% (4)	1	0	1

Q15: The Majority of students accepted to Lehigh have also been accepted to which type of institution?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Ivy League Institutions (1)	3	1	2
Science & Engineering (2)	2	0	2
Small Private Institutions (3)	***34***	***21***	***13***
State Affiliated Institutions (4)	12	4	8

Q16: Which adjective best describes a student accepted to Lehigh?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Achiever (1)	***43***	***20***	***23***
Disciplined (2)	3	2	1
Intellectual (3)	0	0	0
Social (4)	5	4	1

Q17: What type of High School do most students accepted to Lehigh attend?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Private H.S. (1)	2	2	0
Public H.S. (2)	***25***	9	***16***
Equally Attend Public & Private (3)	24	***15***	9
Alternative, Magnet & Arts H.S. (4)	0	0	0

Q18: Students accepted to Lehigh spend the majority of their time in which type of extracurricular activity during High School?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Athletics/Cheerleading (1)	***24***	***12***	***12***
Drama & Music Activities (2)	3	0	3
Service Organizations (3)	5	3	2
Social Organizations (4)	19	11	8

Q19: Students accepted to Lehigh most often have questions about?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Athletic Programs & Activities (1)	4	4	0
Campus Life & Housing (2)	21	***11***	10
Career & Academic Support (3)	5	5	0
Academics & Majors (4)	***21***	6	***15***

Q20: Most of the students accepted to Lehigh would spend their summer before college?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
In academic programs (1)	0	0	0
Hanging out with friends (2)	2	2	0
Traveling/Vacationing (3)	14	***13***	1
Working/Saving for School (4)	***35***	11	***24***

Q21: The majority of students who decide to attend Lehigh University have chosen which of the following areas of study?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Engineering (1)	14	7	7
Business/Management (2)	1	0	1
Sciences/Mathematics (3)	8	4	4
Social Sciences/Humanities (4)	***28***	***15***	***13***

Q22: Which of the following is usually the main attraction to enrolled Lehigh students?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Academic Reputation (1)	***40***	***20***	***20***
Campus Layout (2)	5	3	2
Geographic Location (3)	1	1	0
Social Atmosphere (4)	5	2	3

Q23: Which of the following adjectives best describes students who decide to attend Lehigh?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Academic (1)	19	4	***15***
Athletic (2)	2	1	1
Individualistic (3)	4	2	2
Social (4)	***26***	***19***	7

Q24: The majority of Lehigh admitted students have career aspirations to work for?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Government Agencies (1)	0	0	0
Large Corporations (2)	***40***	***18***	***22***
Non-Profit Organizations (3)	0	0	0
Small Companies or Firms (4)	11	8	3

Q25: Most of the students who attend Lehigh spend the summer before matriculation?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
In academic programs (1)	0	0	0
Hanging out with friends (2)	2	2	0
Traveling/Vacationing (3)	13	***13***	0
Working/Saving for School (4)	***36***	11	***25***

Q26: Students who decide to attend Lehigh are from families who can be described economically as? ?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Deprived (1)	0	0	0
Unstable (2)	1	0	1
Comfortable (3)	***46***	***25***	***21***
Well off (4)	4	1	3

Q27: Students who decide to matriculate to Lehigh are most often from?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Large Cities (1)	2	1	1
Suburbs (2)	***47***	***24***	***23***
Small Towns (3)	2	1	1
Rural Areas (4)	0	0	0

Q28: Students who enroll at Lehigh University usually have second choice schools in which category?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Ivy League Institutions (1)	1	0	1
Science & Engineering (2)	4	1	3
Small Private Institutions (3)	***29***	***20***	9
State Affiliated Institutions (4)	17	5	***12***

Q29: Most students who enroll at Lehigh will be involved in?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
Athletics/Cheerleading (1)	10	6	4
Drama & Music Activities (2)	2	0	2
Service Organizations (3)	5	4	1
Social Organizations (4)	***34***	***16***	***18***

Q30: What percent of students who attend Lehigh University Receive Financial Aid?

RESPONSES	WHOLE SAMPLE N=51	HIGH FACTOR 2 N=26	LOW FACTOR 2 N=25
10% - 20% (1)	1	1	0
21% - 30% (2)	2	1	1
31% - 40% (3)	13	7	6
41%+ (4)	***35***	***17***	***18***

Table 4: Degree Centrality (see end for explanations)

ID#	Valued OutDegree	Valued InDegree	Unvalued OutDegree	Unvalued InDegree
A-05	85	71	29	29
A-06	65	75	25	30
A-07	68	62	24	24
A-08	39	51	12	19
A-09	62	60	23	24
A-10	66	65	27	25
A-04	43	52	15	19
A-03	43	46	18	17
A-02	60	59	25	24
A-01	50	40	19	12
D-01	43	60	22	30
D-02	46	67	26	36
FA-01	46	26	30	17
FA-02	6	1	6	1
FA-03	9	15	9	12
FA-04	43	33	23	22
FA-05	52	21	29	15
FA-06	42	27	24	15
FA-07	16	26	15	19
FA-08	13	28	10	22
FA-09	19	25	11	16
FA-10	10	18	8	11
FA-11	78	48	33	29
FA-12	6	16	3	10
D-04	77	85	40	37
D-03	72	105	39	44
FE-01	12	16	6	12
FE-02	9	19	6	12
FE-03	40	22	26	12
FE-04	11	12	5	6
FE-05	17	19	8	12
FE-06	17	13	7	6
FE-07	21	16	16	10
FE-08	13	19	7	12
FE-09	34	40	24	26
FE-10	42	34	25	15
FE-11	10	12	6	8
D-06	93	79	38	36
D-05	75	67	33	29
FB-01	70	59	34	27
FB-02	28	52	11	26
FB-03	27	28	12	11
FB-04	21	35	14	15
FB-05	25	17	14	9
O-01	29	29	12	14
O-02	72	56	37	32
O-03	68	59	32	29
O-04	20	43	14	22
O-05	87	85	41	41

Note for Table E4:
Valued OutDegree = sum of the interaction ties initiated by the actor
Valued InDegree = sum of the interaction ties that claim the actor
Unvalued OutDegree = number of others the actor claims to interact with
Unvalued InDegree = number of others that claim to interact with the actor

Table 5: Comparison Of High & Low Consensus Factor2 Questions, Similarity & Differences

	High Factor2 (N=26)	Low Factor2 (N=25)
QUESTIONS: PROSPECTIVE STUDENTS		
Q1: Interested students usually come from	suburbs of large cities	
Q2: Attracted to Lehigh because of the	academic reputation	
Q4: Family's economic situation	comfortable	
Q5: Adjective describing prospective students	goal-oriented	
Q7: Category of other schools interested in	small private	
Q9: What they find unattractive about Lehigh	geographic location	
Q3: Combined SAT	1101-1200	more than 1200
Q6: Academic programs most interested in	soc.sci./humanities	engineering
Q8: Spend summer before college	vacationing	working/saving
Q10: Matter most concerned about	campus life	career/academics
QUESTIONS: ACCEPTED STUDENTS		
Q12: Verbal SAT	501-600	
Q14: High school class rank	top 25%	
Q15: Also accepted by what kind of other schools	small private	
Q16: Adjective that best describes students	achiever	
Q18: Typical extracurricular activity in high school	athletics	
Q11: Math SAT	501-600	more than 600
Q13: Combined SAT	1101-1200	more than 1200
Q17: Kind of high school attended	private & public	public
Q19: Areas most often have questions about	campus life/housing	acad./majors
Q20: Spend summer before college	vacationing	working/saving
QUESTIONS: ENROLLED STUDENTS		
Q21: Academic programs most interested in	soc.sci./humanities	
Q22: Attracted to Lehigh because of its	academic reputation	
Q24: Most commonly want career in	large corporations	
Q26: Family's economic situation	comfortable	
Q27: Students usually come from	suburbs	
Q29: Typical extracurricular activity at Lehigh	social organization	
Q30: Percent who receive financial aid	41% or more	
Q23: Adjective that best describes students	social	academic
Q25: How spent summer before college	vacationing	working/saving
Q28: Kind of 2nd-choice schools	small private	state-affiliated

VITA

DAWN E. MURRAY

PLACE & DATE OF BIRTH

- August 13, 1973 in Philadelphia, PA to Henry & Juretha Murray
- Deirdre A. Murray, sibling

EDUCATION

- Lehigh University, Bethlehem, PA - M.A. in Social Relations, May 1999
- Millersville University of Pennsylvania, Millersville, PA - B.A. in Anthropology, May 1995 (Cum Laude)

EXPERIENCE

- Research Assistant - Lehigh University, Bethlehem, PA
- Teaching Assistant - Lehigh University, Bethlehem, PA
- Admission Counselor - Lebanon Valley College, Annville, PA

PROFESSIONAL AFFILIATIONS

- Hugh O'Brian Youth Foundation
- Pennsylvania Association of Secondary School & College Admission Counselors

HONORS & ACTIVITIES

- Millersville University Honors Program
- National Collegiate Minority Leadership Award
- Who's Who among Students in American Colleges and Universities
- Outstanding Senior Anthropology Student
- Who's Who among Black College Students

END OF TITLE